



# **ACCEPTANCE MODEL FOR ELECTRONIC PERSONALIZED HEALTH RECORDS IN PENINSULAR MALAYSIA BASED ON USERS PERSPECTIVE**

**NOORAYISAHBE BINTI MOHD YAACOB**

**Doctor of Philosophy**

**2020**



**Faculty of Information and Communication Technology**

**ACCEPTANCE MODEL FOR ELECTRONIC PERSONALIZED  
HEALTH RECORDS IN PENINSULAR MALAYSIA BASED ON  
USERS PERSPECTIVE**

**Noorayisahbe binti Mohd Yaacob**

**Doctor of Philosophy**

**2020**

**ACCEPTANCE MODEL FOR ELECTRONIC PERSONALIZED HEALTH  
RECORDS IN PENINSULAR MALAYSIA BASED ON USERS PERSPECTIVE**

**NOORAYISAHBE BINTI MOHD YAACOB**

**A thesis submitted  
in fulfillment of the requirements for the degree of Doctor of Philosophy**

**Faculty of Information and Communication Technology**

**UNIVERSITI TEKNIKAL MALAYSIA MELAKA**

**2020**

## DECLARATION

I declare that this thesis entitled “Acceptance Model for Electronic Personalized Health Records in Peninsular Malaysia Based on Users Perspective” is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

Signature : .....

Name : Noorayisahbe binti Mohd Yaacob

Date : .....

## **APPROVAL**

I hereby declare that I have read this thesis and in my opinion this thesis is sufficient in terms of scope and quality for the award of Doctor of Philosophy.

Signature : .....

Supervisor Name : Professor Dr. Abd Samad bin Hasan Basari

Date : .....

## **DEDICATION**

This study is dedicated to the Ministry of Health Malaysia (MOHM), eHealth planning division for further reference and continuing work related to designing, development including implementation of electronic Personalized Health Records [e-PHR] in Malaysia.

This study is dedicated to Biomedical Computing and Engineering Technologies (BIOCORE) Applied Research Group, UTeM for further reference in development and implementation of health informatics in Malaysia.

## ABSTRACT

The healthcare sector is growing rapidly in developing electronic personalized health records (e-PHR) as an internet-based eHealth implementation in many countries. The e-PHR has been recognized as one of the important roles in managing personalized health and health informatics. However, the acceptance of e-PHRs in Peninsular Malaysia is still under study. The lack of user acceptance is a critical impediment to the success of an information system (IS) model. Thus, understanding an individual's acceptance or rejection of information technology (IT) is considered as one of the most challenging issues. Most of the primary care sector, both public and private hospitals including clinics in Malaysia are still ambiguous with e-PHR. Therefore, the need to conduct a research on the factors that influence and how e-PHR can be accepted especially for Malaysian patients, physicians and organizations are very essential. The aim of this study is to investigate the factors that are important in order to propose an e-PHR acceptance model from patients, physicians and organizations perspectives within the context of Malaysian public and private hospitals including clinics. Accordingly, this study integrated the Unified Theory of Acceptance and Use of Technology (UTAUT2), Diffusion of Innovations (DOI), Technology Organization Environment (TOE) and Cultural (Hofstede) to propose the factors influencing acceptance of the e-PHR in Peninsular Malaysia. This research utilized the mix method approach which are triangulation technique and interviews including a survey through a web-based questionnaire that involved seventy-one dimensions for patients, eighty-four dimensions for physicians and about ninety-four dimensions for the organization. Twenty-four hypotheses have been determined to test the proposed model. The analysis has been done through SPSS and SmartPLS software to evaluate internal consistency, indicator reliability, convergent and discriminant validity of the survey instrument. The results from the initial hypotheses testing indicated that personal innovativeness, knowledge, privacy and security, and trust are the most significant factors for the acceptance of e-PHR based on Peninsular Malaysia patients, physicians and organizations with Average Variance Extracted (AVE) > 0.05. The results from moderation hypothesis testing shown that there is no significant effect with AVE < 0.05 on the relationships in the model. The proposed model has been validated by ten selected experts from different organizations. This study concluded that there is an existence of significant factors on e-PHR acceptance among patients, physicians and organizations. The research findings conclude that the significant factors have the same effect on e-PHR acceptance within Peninsular Malaysia patients, physicians and organizations. This research has contributed to the body of knowledge in the field of health informatics which focusing on e-PHR acceptance in Peninsular Malaysia.

## **ABSTRAK**

Sektor penjagaan kesihatan sedang berkembang dengan pesat dalam membangunkan rekod kesihatan peribadi elektronik (e-PHR) sebagai pelaksanaan eHealth berasaskan internet di banyak negara. e-PHR telah diiktiraf sebagai salah satu peranan penting dalam menguruskan kesihatan peribadi dan informatik kesihatan. Walau bagaimanapun, penerimaan e-PHR di semenanjung Malaysia masih diperingkat kajian. Kekurangan penerimaan pengguna merupakan halangan kritikal bagi kejayaan model sistem maklumat (IS). Oleh itu, pemahaman penerimaan atau penolakan teknologi maklumat (IT) individu dianggap sebagai salah satu isu yang paling mencabar. Sebahagian besar sektor penjagaan kesihatan awam dan swasta termasuk klinik di Malaysia masih tidak jelas dengan e-PHR. Sewajarnya keperluan untuk menjalankan kajian berkaitan faktor-faktor yang mempengaruhi dan bagaimana e-PHR dapat diterima terutamanya oleh pesakit, pegawai perubatan dan organisasi di semenanjung Malaysia adalah amat penting. Dengan itu, matlamat kajian ini adalah untuk mengkaji faktor-faktor yang penting bagi mencadangkan model penerimaan e-PHR dari perspektif pesakit, pakar perubatan dan organisasi dalam konteks hospital awam dan swasta di semenanjung Malaysia termasuk klinik. Oleh yang demikian, kajian ini menyatukan Teori Penerimaan dan Penggunaan Teknologi Unified (UTAUT2), Difusi Inovasi (DOI), Persekitaran Organisasi Teknologi (TOE) dan Budaya (Hofstede) untuk mencadangkan faktor-faktor yang mempengaruhi penerimaan e-PHR di semenanjung Malaysia. Kajian ini menggunakan pendekatan kaedah campuran iaitu teknik triangulasi dan mengendalikan temubual termasuk tinjauan melalui soal selidik berasaskan web yang melibatkan tujuh puluh satu dimensi untuk pesakit, lapan puluh empat dimensi untuk doktor dan kira-kira sembilan puluh empat dimensi untuk organisasi. Dua puluh empat hipotesis telah ditentukan untuk menguji model yang dicadangkan. Analisis telah dilakukan melalui perisian SPSS dan SmartPLS untuk menilai konsistensi dalaman, kebolehppercayaan indikator, kesesuaian dan kesahihan diskriminasi instrumen kajian. Hasil daripada ujian hipotesis awalan menunjukkan bahawa inovatif, pengetahuan, privasi dan keselamatan peribadi, dan kepercayaan peribadi adalah faktor yang paling penting untuk penerimaan e-PHR berdasarkan kepada pesakit, pegawai perubatan dan organisasi di semenanjung Malaysia dengan Purata Variance Extracted (AVE) > 0.05. Hasil dari ujian hipotesis menunjukkan tiada kesan signifikan dengan AVE < 0.05 pada hubungan dalam model. Model yang dicadangkan telah disahkan oleh sepuluh pakar terpilih dari organisasi yang berbeza. Penemuan kajian menyimpulkan bahawa terdapat kewujudan faktor penting dalam penerimaan e-PHR di kalangan pesakit, pakar perubatan dan organisasi di semenanjung Malaysia.



## **ACKNOWLEDGEMENTS**

First and foremost, praises and thank to Allah S.W.T for the blessing and guidance throughout the completion of this research work.

I would like to express my special thank of gratitude to my beloved father Mohd Yaacob bin Abdul Hamid, mother, brothers, sisters and relative through the wonderful support during the journey of this study.

I would like to express my deep and sincere gratitude to my supervisor Professor Dr. Abd Samad bin Hasan Basari for providing the invaluable guidance, motivation and support to successfully complete this study.

My special thanks to BIOCORE member Professor Dr. Mohd. Khanapi bin Abd. Ghani, Dr. Raja Rina binti Raja Ikram, Dr. Lizawati binti Salahuddin and others for the superb help, support and guidance to complete this study.

Finally, I would like to thank Universiti Teknikal Malaysia Melaka (UTeM) for their support specially UTeM Zamalah Scheme and FTMK including UTeM staff for the support and help in completion of this study. I am extremely grateful to my friends and colleagues for their time, understanding, advice, and continues moral support in completion of this study.

## TABLE OF CONTENTS

	PAGE
<b>DECLARATION</b>	
<b>APPROVAL</b>	
<b>DEDICATION</b>	
<b>ABSTRACT</b>	i
<b>ABSTRAK</b>	ii
<b>ACKNOWLEDGEMENTS</b>	iii
<b>TABLE OF CONTENTS</b>	iv
<b>LIST OF TABLES</b>	vii
<b>LIST OF FIGURES</b>	xvii
<b>LIST OF APPENDICES</b>	xix
<b>LIST OF ABBREVIATIONS</b>	xx
<b>LIST OF PUBLICATIONS</b>	xxii
 <b>CHAPTER</b>	
<b>1. INTRODUCTION</b>	<b>1</b>
1.1 Overview	1
1.2 Problem statement	3
1.3 Research question	5
1.4 Research objectives	6
1.5 Significant of the Study	7
1.6 Scope of the study	7
1.7 Thesis organization	10
 <b>2. LITERATURE REVIEW</b>	<b>12</b>
2.1 Introduction	12
2.2 Healthcare	12
2.3 Health information technology	14
2.4 e-Health	17
2.4.1 e-PHR monitoring system	23
2.4.2 e-PHR preventive health	24
2.4.3 e-PHR environment	24
2.5 Healthcare in Malaysia	26
2.5.1 Overview of healthcare system in Malaysia	31
2.6 International approached of e-PHR	35
2.6.1 Europe	35
2.6.2 USA	35
2.6.3 New Zealand	36
2.6.4 Australia	36
2.6.5 Canada	36
2.6.6 UK	37
2.6.7 Taiwan	37
2.7 Current Issues in e-PHR Acceptance	38
2.8 Theory related to technology acceptance	42
2.9 An Analysis of theoretical framework	50

2.10	Existing studies related of e-PHR	54
2.11	An Analysis from Existing Studies	60
2.12	Analysis Related to e-PHR Acceptance Factors	64
2.12.1	Performance expectancy	66
2.12.2	Effort expectancy	67
2.12.3	Social influence	67
2.12.4	Facilitating condition	68
2.12.5	Hedonic motivation	69
2.12.6	Price value	70
2.12.7	Habit	71
2.12.8	Behavioral Intention	71
2.12.9	Use behavioural	72
2.12.10	Demographics characteristics	72
2.12.11	Knowledge	73
2.12.12	Persuasion	74
2.12.13	Decision	75
2.12.14	Confirmation	75
2.12.15	Technology	75
2.12.16	Organization	76
2.12.17	Environment	76
2.12.18	Cultural	78
2.12.19	Security	80
2.12.20	Trust	81
2.12.21	Privacy	81
2.13	Summary	82
<b>3.</b>	<b>METHODOLOGY</b>	<b>84</b>
3.1	Introduction	84
3.2	Selection methodologies	84
3.2.1	Case Study Approached	85
3.3	Research design	86
3.3.1	Triangulation technique	87
3.4	Research process	89
3.4.1	Conduct literature review phase	91
3.4.2	Data collection phase	91
3.4.3	Perform systematic review for current & previous study phase	98
3.4.4	Analyse and revise case study on current model phase	98
3.4.5	Questionnaire development for survey phase	98
3.4.6	Questionnaire development for interview of expert phase	99
3.4.7	Design the proposed model phase	100
3.4.8	Development and implementation of proposed UA model	103
3.4.9	Model validation phase	110
3.4.10	Data analysis	111
3.4.11	SPPS tool	111
3.4.12	SMARTPLS	112
3.4.13	Validity	112
3.4.14	External validity	113
3.4.15	Content validity	113

3.4.16	Construct validity	113
3.4.17	Reliability	114
3.4.18	Refine model phase	114
3.5	Pilot study	114
3.6	Summary	126
<b>4.</b>	<b>IMPLEMENTATION AND RESULT</b>	<b>128</b>
4.1	Introduction	128
4.2	Analysis of data collection	128
4.2.1	Demographic characteristics	132
4.2.2	Analysis of hypothesis	133
4.2.3	Designed of final proposed model of e-PHR	180
4.3	Discussion	184
4.4	Validation of proposed model	185
4.4.1	Validation Result	187
4.5	Summary	196
<b>5.</b>	<b>CONCLUSION AND FUTURE WORK</b>	<b>198</b>
5.1	Introduction	198
5.2	Conclusion Related to Research Objectives	198
5.3	Research Contributions	200
5.4	Limitation and Future Work	203
	<b>REFERENCES</b>	<b>204</b>
	<b>APPENDICES</b>	<b>232</b>

## LIST OF TABLES

<b>TABLE</b>	<b>TITLE</b>	<b>PAGE</b>
2.1	Statistic of age first quarter (Q1) 2019, Malaysia	27
2.2	The death cause (Department of Statistics Malaysia, 2019)	28
2.3	Acceptance issues of e-PHR	41
2.4	Existing studies related to e-PHR	55
2.5	Existing studies related to adoption and acceptance of e-PHR	56
2.6	Existing factors related to e-PHR acceptances	57
2.7	Selected theoretical model related to e-PHR	59
2.8	List of acceptance factors from existing studies	60
2.9	Analysis of occurrence factors	62
2.10	Factors acceptance from combination of UTAUT2, DOI, TOE & cultural (Hofstede)	65
3.1	Questionnaires validation	100
3.2	Hypotheses	104
3.3	Hypotheses source	105
3.4	Research instrument (patient, physicians & organization)	109
3.5	Research instrument phase	110
3.6	Correlation between items and each factor for patients (respondent)	115
3.7	Correlation between items and each factor for physicians (respondent)	116
3.8	Correlation between items and each factor for organizations (Respondent)	118

3.9	Reliability tests for survey's organization	122
3.10	Reliability tests for survey's patient	122
3.11	Reliability tests for survey's Physicians	123
3.12	Guttman split half for survey's organization	124
3.13	Spearman-Brown split half for survey's organization	124
3.14	Guttman split half for survey's patient	124
3.15	Spearman-Brown split half for survey's patient	124
3.16	Guttman split half for survey's physicians	125
3.17	Spearman-Brown split half for survey's physicians	125
3.18	Feedback from respondent	126
4.1	Technological dimension for patients	129
4.2	Technological dimension for physicians	130
4.3	Technological dimension for organizations	131
4.4	Total technological dimension (Organizations)	131
4.5	Demographic characteristics for patients, physicians and organizations	132
4.6	Model summary for the value of rand R square and adjusted R square (H1pt)	134
4.7	Analysis of variance (ANOVA) (H1pt)	134
4.8	The coefficients <sup>a</sup> and distributed T(H1pt)	134
4.9	Model summary for the value of Rand R square and adjusted R square (H1pp)	135
4.10	Analysis of variance (ANOVA) (H1pp)	135
4.11	The coefficients <sup>a</sup> and distributed T (H1pp)	135
4.12	Model summary for the value of rand R square and adjusted R square (H1org)	135
4.13	Analysis of variance (ANOVA) (H1org)	136
4.14	The coefficients <sup>a</sup> and distributed T(H1org)	136
4.15	Model summary for the value of rand R square and adjusted R square (H2pt)	136

4.16	Analysis of variance (ANOVA) (H2pt)	136
4.17	The coefficients <sup>a</sup> and distributed T (H2pt)	137
4.18	Model summary for the value of rand R square and adjusted R square (H2pp)	137
4.19	Analysis of variance (ANOVA) (H2pp)	137
4.20	The coefficients <sup>a</sup> and distributed T (H2pp)	137
4.21	Model summary for the value of rand R square and adjusted R square (H2org)	138
4.22	Analysis of variance (ANOVA) (H2org)	138
4.23	The coefficients <sup>a</sup> and distributed T (H2org)	138
4.24	Model summary for the value of rand R square and adjusted R square (H3pt)	139
4.25	Analysis of variance (ANOVA) (H3pt)	139
4.26	The coefficients <sup>a</sup> and distributed T (H3pt)	139
4.27	Model summary for the value of rand R square and adjusted R square (H3pp)	139
4.28	Analysis of variance (ANOVA) (H3pp)	140
4.29	The coefficients <sup>a</sup> and distributed T (H3pp)	140
4.30	Model summary for the value of rand R square and adjusted R square (H3org)	140
4.31	Analysis of variance (ANOVA) (H3org)	140
4.32	The coefficients <sup>a</sup> and distributed T (H3org)	140
4.33	Model summary for the value of rand R square and adjusted R square (H4pt)	141
4.34	Analysis of variance (ANOVA) (H4pt)	141
4.35	The coefficients <sup>a</sup> and distributed T (H4pt)	141
4.36	Model summary for the value of rand R square and adjusted R square (H4pp)	142
4.37	Analysis of variance (ANOVA) (H4pp)	142
4.38	The coefficients <sup>a</sup> and distributed T (H4pp)	142
4.39	Model summary for the value of rand R square and adjusted R square (H4org)	142
4.40	Analysis of variance (ANOVA) (H4org)	142

4.41	The coefficients <sup>a</sup> and distributed T (H4org)	143
4.42	Model summary for the value of rand R square and adjusted R square (H5pt)	143
4.43	Analysis of variance (ANOVA) (H5pt)	143
4.44	The coefficients <sup>a</sup> and distributed T (H5pt)	143
4.45	Model summary for the value of rand R square and adjusted R square (H5pp)	144
4.46	Analysis of variance (ANOVA) (H5pp)	144
4.47	The coefficients <sup>a</sup> and distributed T (H5pp)	144
4.48	Model summary for the value of rand R square and adjusted R square (H5org)	145
4.49	Analysis of variance (ANOVA) (H5org)	145
4.50	The coefficients <sup>a</sup> and distributed T(H5org)	145
4.51	Model summary for the value of rand R square and adjusted R square (H6pt)	145
4.52	Analysis of Variance (ANOVA) (H6pt)	146
4.53	The coefficients <sup>a</sup> and distributed T (H6pt)	146
4.54	Model summary for the value of rand R square and adjusted R square (H6pp)	146
4.55	Analysis of variance (ANOVA) (H6pp)	146
4.56	The coefficients <sup>a</sup> and distributed T (H6pp)	146
4.57	Model summary for the value of Rand R square and adjusted R square (H6org)	147
4.58	Analysis of variance (ANOVA) (H6org)	147
4.59	The coefficients <sup>a</sup> and distributed T(H6org)	147
4.60	Model summary for the value of rand R square and adjusted R square	148
4.61	Analysis of variance (ANOVA)	148
4.62	The coefficients <sup>a</sup> and distributed T	148
4.63	Model summary for the value of rand R square and adjusted R square	148
4.64	Analysis of variance (ANOVA)	148
4.65	The coefficients <sup>a</sup> and distributed T	149



4.66	Model summary for the value of Rand R square and adjusted R square	149
4.67	Analysis of variance (ANOVA)	149
4.68	The coefficients <sup>a</sup> and distributed T	149
4.69	Model summary for the value of rand R square and adjusted R square	150
4.70	Analysis of variance (ANOVA)	150
4.71	The coefficients <sup>a</sup> and distributed T	150
4.72	Model summary for the value of rand R square and adjusted R square	151
4.73	Analysis of variance (ANOVA)	151
4.74	The coefficients <sup>a</sup> and distributed T	151
4.75	Model summary for the value of rand R square and adjusted R square	151
4.76	Analysis of variance (ANOVA)	151
4.77	The coefficients <sup>a</sup> and distributed T	152
4.78	Model summary for the value of rand R square and adjusted R square	152
4.79	Analysis of variance (ANOVA)	152
4.80	The coefficients <sup>a</sup> and distributed T	152
4.81	Model summary for the value of rand R square and adjusted R square	153
4.82	Analysis of variance (ANOVA)	153
4.83	The coefficients <sup>a</sup> and distributed T	153
4.84	Model summary for the value of rand R square and adjusted R square	154
4.85	Analysis of variance (ANOVA)	154
4.86	The coefficients <sup>a</sup> and distributed T	154
4.87	Model summary for the value of rand R square and adjusted R square	154
4.88	Analysis of variance (ANOVA)	155
4.89	The coefficients <sup>a</sup> and distributed T	155
4.90	Model summary for the value of rand R square and adjusted R square	155

4.91	Analysis of variance (ANOVA)	155
4.92	The coefficients <sup>a</sup> and distributed T	155
4.93	Model summary for the value of rand R square and adjusted R square	156
4.94	Analysis of variance (ANOVA)	156
4.95	The coefficients <sup>a</sup> and distributed T	156
4.96	Model summary for the value of rand R square and adjusted R square	157
4.97	Analysis of variance (ANOVA)	157
4.98	The coefficients <sup>a</sup> and distributed T	157
4.99	Model summary for the value of rand R square and adjusted R square	157
4.100	Analysis of variance (ANOVA)	157
4.101	The coefficients <sup>a</sup> and distributed T	158
4.102	Model summary for the value of rand R square and adjusted R square	158
4.103	Analysis of variance (ANOVA)	158
4.104	The coefficients <sup>a</sup> and distributed T	158
4.105	Model summary for the value of rand R square and adjusted R square	159
4.106	Analysis of variance (ANOVA)	159
4.107	The coefficients <sup>a</sup> and distributed T	159
4.108	Model summary for the value of rand R square and adjusted R square	159
4.109	Analysis of variance (ANOVA)	160
4.110	The coefficients <sup>a</sup> and distributed T	160
4.111	Model summary for the value of rand R square and adjusted R square	160
4.112	Analysis of variance (ANOVA)	160
4.113	The coefficients <sup>a</sup> and distributed T	160
4.114	Model summary for the value of Rand R square and adjusted R square	161
4.115	Analysis of variance (ANOVA)	161

4.116	The coefficients <sup>a</sup> and distributed T	161
4.117	Model summary for the value of rand R square and adjusted R square	162
4.118	Analysis of variance (ANOVA)	162
4.119	The coefficients <sup>a</sup> and distributed T	162
4.120	Model summary for the value of rand R square and adjusted R square	162
4.121	Analysis of variance (ANOVA)	162
4.122	The coefficients <sup>a</sup> and distributed T	163
4.123	Model summary for the value of rand R square and adjusted R square	163
4.124	Analysis of Variance (ANOVA)	163
4.125	The coefficients <sup>a</sup> and distributed T	163
4.126	Model summary for the value of rand R square and adjusted R square	164
4.127	Analysis of variance (ANOVA)	164
4.128	The coefficients <sup>a</sup> and distributed T	164
4.129	Model summary for the value of rand R square and adjusted R square	164
4.130	Analysis of variance (ANOVA)	165
4.131	The coefficients <sup>a</sup> and distributed T	165
4.132	Model summary for the value of rand R square and adjusted R square	165
4.133	Analysis of variance (ANOVA)	165
4.134	The coefficients <sup>a</sup> and distributed T	165
4.135	Model summary for the value of rand R square and adjusted R square	166
4.136	Analysis of variance (ANOVA)	166
4.137	The coefficients <sup>a</sup> and distributed T	166
4.138	Model summary for the value of rand R square and adjusted R square	167
4.139	Analysis of variance (ANOVA)	167
4.140	The coefficients <sup>a</sup> and distributed T	167

4.141	Model summary for the value of rand R square and adjusted R square	167
4.142	Analysis of variance (ANOVA)	167
4.143	The coefficients <sup>a</sup> and distributed T	168
4.144	Model summary for the value of rand R square and adjusted R square	168
4.145	Analysis of variance (ANOVA)	168
4.146	The coefficients <sup>a</sup> and distributed T	168
4.147	Model summary for the value of rand R square and adjusted R square	169
4.148	Analysis of variance (ANOVA)	169
4.149	The coefficients <sup>a</sup> and distributed T	169
4.150	Model summary for the value of rand R square and adjusted R square	170
4.151	Analysis of variance (ANOVA)	170
4.152	The coefficients <sup>a</sup> and distributed T	170
4.153	Model summary for the value of rand R square and adjusted R square	171
4.154	Analysis of variance (ANOVA)	171
4.155	The coefficients <sup>a</sup> and distributed T	171
4.156	Model summary for the value of rand R square and adjusted R square	171
4.157	Analysis of variance (ANOVA)	171
4.158	The coefficients <sup>a</sup> and distributed T	172
4.159	Model summary for the value of rand R square and adjusted R square	172
4.160	Analysis of variance (ANOVA)	172
4.161	The coefficients <sup>a</sup> and distributed T	172
4.162	Model summary for the value of rand R square and adjusted R square	173
4.163	Analysis of variance (ANOVA)	173
4.164	The coefficients <sup>a</sup> and distributed T	173
4.165	Model summary for the value of rand R square and adjusted R square	173

4.166	Analysis of variance (ANOVA)	174
4.167	The coefficients <sup>a</sup> and distributed T	174
4.168	Model summary for the value of rand R square and adjusted R square	174
4.169	Analysis of variance (ANOVA)	174
4.170	The coefficients <sup>a</sup> and distributed T	174
4.171	Model summary for the value of rand R square and adjusted R square	175
4.172	Analysis of variance (ANOVA)	175
4.173	The coefficients <sup>a</sup> and distributed T	175
4.174	Model summary for the value of rand R square and adjusted R square	176
4.175	Analysis of variance (ANOVA)	176
4.176	The coefficients <sup>a</sup> and distributed T	176
4.177	Model summary for the value of rand R square and adjusted R square	176
4.178	Analysis of variance (ANOVA)	177
4.179	The coefficients <sup>a</sup> and distributed T	177
4.180	Model summary for the value of rand R square and adjusted R square	177
4.181	Analysis of variance (ANOVA)	177
4.182	The coefficients <sup>a</sup> and distributed T	178
4.183	Model summary for the value of rand R square and adjusted R square	178
4.184	Analysis of variance (ANOVA)	178
4.185	The coefficients <sup>a</sup> and distributed T	178
4.186	Model summary for the value of rand R square and adjusted R square	179
4.187	Analysis of variance (ANOVA)	179
4.188	The coefficients <sup>a</sup> and distributed T	179
4.189	Feedback of respondent (Patient, physicians, organizations)	180
4.190	Interviewer Background	187

4.191	Explanation of proposed model	188
4.192	Constructs of proposed model	188
4.193	Hypothesis of proposed e-PHR acceptance model	189
4.194	Process of proposed model	189
4.195	Architecture flow in proposed model	190
4.196	Constructs architecture	191
4.197	Design of proposed model	191
4.198	Design solution	192
4.199	Revise of design solution	192
4.200	Specific benefits	193
4.201	Impede of proposed model	194
4.202	Willing to accept	194
4.203	Willing to use in future	195

## LIST OF FIGURES

FIGURE	TITLE	PAGE
1.1	Health Informatics (Parlak and Tolga, 2018)	8
1.2	Research Scope (Williamson et al., 2017)	9
2.1	HIT Workflow (Williamson et al., 2017)	14
2.2	eHealth system (Capello and Luini, 2014; Tavares and Oliveira, 2016)	18
2.3	Statistics of ethnic group first quarter (Q1) 2019	28
2.4	Hierarchy of Malaysian healthcare structure	29
2.5	Healthcare facilities	30
2.6	Healthcare system stage in Malaysia	31
2.7	Malaysia health information strategy	33
2.8	eHealth strategy	33
2.9	MyHealth portal	34
2.10	Theory of Reasoned Action (TRA), (Awa et al., 2015)	43
2.11	Technology Acceptance Model (TAM), (Venkatesh et al., 2018)	44
2.12	The Motivational Model (MM), (Gao et al., 2015)	45
2.13	Theory of Planned Behavior (TPB), (Awa et al., 2015)	45
2.14	The Hybrid Model (C-TAM-TPB), (Lai, 2017)	46
2.15	The Model of PC Utilization (MPCU), (Venkatesh, 2012)	46
2.16	The Diffusion of Innovation Theory (DOI), (Zhang et al., 2015)	47
2.17	UTAUT Theory, (Venkatesh et al., 2018)	48

2.18	UTAUT2 Theory, (Venkatesh et al., 2018)	49
2.19	TOE Theory, (Ahmadi et al., 2015)	49
2.20	HCD Theory (Baptista and Oliveira, 2015)	50
2.21	Percentage of occurrence factors	63
3.1	Research design (Bentahar and Cameron, 2015; Creswell, 2014)	88
3.2	Research process	90
3.3	Sampling Strategy	97
3.4	Conceptual model	102
4.1	Final Proposed Model of e-PHR	182